

AD-A051 471

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO  
ACCELERATED METHODS OF TESTING RELIABILITY OF ELECTRONIC ELEMEN--ETC(U)  
AUG 77 J TUSZYNSKI  
FTD-ID(RS)T-1465-77

F/G 9/3

UNCLASSIFIED

NL

| OF |  
AD  
A051471



END  
DATE  
FILMED  
4-78  
DDC

1

FTD-ID(RS)T-1465-77

AD-A051471

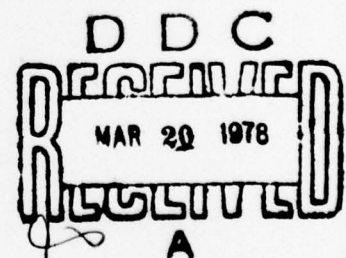
# FOREIGN TECHNOLOGY DIVISION



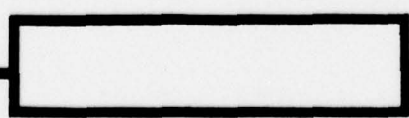
ACCELERATED METHODS OF TESTING RELIABILITY OF  
ELECTRONIC ELEMENTS (SYMPOSIUM IN ZIELONA GORA,  
MAY 1976)

by

J. Tuszynski



Approved for public release;  
distribution unlimited.



**EDITED TRANSLATION**

FTD-ID(RS)T-1465-77

22 August 1977

MICROFICHE NR: FTD-77C-001095

CSI77163823

ACCELERATED METHODS OF TESTING RELIABILITY OF  
ELECTRONIC ELEMENTS (SYMPOSIUM IN ZIELONA GORA,  
MAY 1976)

By: J. Tuszynski

English pages: 4

Source: Elektronika, No. 10, 1976, PP. 368

Country of origin: Poland

Translated by: John G. Hanus

Requester: AFAPL/PBD

Approved for public release; distribution unlimited

|                              |  |
|------------------------------|--|
| ACCESSION BY                 |  |
| RTS                          | With Index <input checked="" type="checkbox"/> |
| DDI                          | With Index <input type="checkbox"/>            |
| DDAT/DOUGER                  | <input type="checkbox"/>                       |
| JUSTIFICATION                |  |
| BY                           |  |
| INSTRUMENT/AVAILABILITY CODE |  |
| DDI                          | DDI/DOUGER/DOUGER                              |
| A                            |  |

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

Accelerated Methods of Testing Reliability of Electronic Elements  
(Symposium in Zielona G6ra, May 1976)

On December 18, 1975 the Headquarters of the Association of Polish Electrical Engineers passed resolution nr. 3-75/78, which dealt with the active inclusion of the association's sections and members in the effort to raise the quality of work and production. This resolution is clearly a consequence of a resolution by the VII Congress of the Polish United Workers' Party, but it is also a natural consequence of the association's long and varied activity in matters pertaining to quality. The association [SEP] was the initiator of the first symbol of quality for products of the Polish electrical engineering industry, the so-called SEP regulation seal, given by the Regulation Symbol Bureau, which was organized in 1933. This activity was revived in 1957. Today the SEP Office of Research on Quality, which operates on a state transfer basis, grants producers permission to mark products with "Q" for quality and "1" for class, as well as with the control sign "KWE".

In order to expand, systematize, and increase the effectiveness of the SEP's public participation in the area of electrical engineering product quality, in 1969 the headquarters created the



Central Commission on Quality [CKJ], one of whose tasks is to cooperate with associations of electrical engineers in other countries. In Frankfurt an der Oder in May 1975 the CKJ entered into cooperation with the Scientific Section on Quality and Reliability Assurance of the Electrical Engineers' Association of the German Democratic Republic. Among the objects of the collaboration are: organizing joint problem-oriented conferences, exchanging lists of literature, recommending selected articles in technical journals of the partner's country, etc.

It has been agreed that the main concern of the collaboration will be the problem of reliability (but not to the exclusion of other problems), and the form of collaboration will be a yearly symposium organized in alternating years by each country. The symposia will have a narrow and strictly defined theme and will be intended for a small group of specialists. To make the symposium materials available to a wide community of interests, most papers will be published as condensed articles in technical journals. Furthermore, all papers will be presented in their entirety at nationwide symposia dedicated to a given theme.

The recognition of the paramount importance of reliability tests has its justification in the great effectiveness of these tests and their significance in raising and determining the level of product quality. Conducting life tests, subjecting products to various stresses and groups of stresses, testing all basic product parameters, probability evaluation of results, and accumulating a large amount of fundamental, detailed, and comprehensive information - these are the most important features of reliability tests.

Among the various reliability tests the greatest significance for industrial practice belongs to accelerated (abbreviated) tests, which permit rapid acquisition of test results. For this reason the theme chosen for the first Polish-German symposium was "Accelerated Methods of Testing Reliability of Electronic Elements". The symposium took place in Zielona Góra on 18-20.5.76 and was organized in cooperation with the Zielona Góra branch of the SEP, as well as the SEP group at the Mera-Lumel Electrical Metrology Research and Development Center. The following papers were presented at the Symposium:

1. Assistant Professor Dr. E. Fidelis, A. Kosmowska, M.S.: "Some Methods of Reducing Reliability Test Time".
2. Asst. Prof. and Dr. of Engineering J. F. Kołodziejski, H. Wujek, M.S.: "The Physical Bases of Accelerated Reliability Tests".
3. H. Gładysz, M.S., Asst. Prof. Dr. J. F. Kołodziejski: "Accelerated Reliability Tests of Semiconductor Elements".
4. E. Paczkowski, Master of Engineering: "Accelerated Reliability Test Methods for Resistors".
5. Dr. of Engineering E. Przybył: "Accelerated Life Tests of Coil Capacitors".
6. E. Peciakowski, M.E.: "Abbreviated Methods of Evaluating Coil Capacitor Stability".
7. J. Jubisch, M.E., G. Peter, M.E.: "A Contribution to a Better Recognition of the Mutual Dependences Between the Functional Reliability of Electrical Products and Their Resistance to Their Environment".
8. K. Kissling, M.E.: "Accelerated Reliability Tests of Computer

Elements and Subassemblies".

9. J. Jöstel, M.E.: "Results of Reliability Tests on Capacitors Using the "Surface-Stress" Method".

10.K.-D. Meyer, M.E.: "Application of Statistical Planning of Tests For Developing Accelerated Tests of Resistors".

After discussion of the papers and a general discussion, it was stated that the symposium was of great benefit to both sides.

As was already mentioned, the majority of the above papers will be published in the journal "ELECTRONICS" [ELEKTRONIKA] - for which I express thanks on behalf of the symposium's organizers and participants - and all of them will be presented at a nationwide symposium in the first quarter of 1977.

The theme of next year's symposium, which will be organized by colleagues from the German Democratic Republic, will be "Determining Operational Reliability of Electrical Engineering and Electronic Products".

We will have the pleasure of informing the Polish Society of Readers of the interesting and widely read journal "Electronics" about further plans for and results of cooperation with affiliated associations.

*Janusz Tuszyński*

Central Commission on Quality at the Headquarters of the SEP



UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

| REPORT DOCUMENTATION PAGE  |                       | READ INSTRUCTIONS<br>BEFORE COMPLETING FORM                    |
|--|-----------------------|--|
| 1. REPORT NUMBER<br>FTD-ID(RS)T-1465-77  | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER                                  |
| 4. TITLE (and Subtitle)<br>ACCELERATED METHODS OF RESTING RELIABILITY<br>OF ELECTRONIC ELEMENTS (SYMPOSIUM IN<br>ZIELONA GORA, MAY 1976) |                       | 5. TYPE OF REPORT & PERIOD COVERED<br>Translation              |
|  |                       | 6. PERFORMING ORG. REPORT NUMBER                               |
| 7. AUTHOR(s)<br>J. Tuszynski   |                       | 8. CONTRACT OR GRANT NUMBER(s)                                 |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>Foreign Technology Division<br>Air Force Systems Command<br>U. S. Air Force               |                       | 10. PROGRAM ELEMENT, PROJECT, TASK<br>AREA & WORK UNIT NUMBERS |
| 11. CONTROLLING OFFICE NAME AND ADDRESS  |                       | 12. REPORT DATE<br>1976  |
|  |                       | 13. NUMBER OF PAGES<br>4                                       |
| 14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)  |                       | 15. SECURITY CLASS. (of this report)<br><br>UNCLASSIFIED       |
|  |                       | 15a. DECLASSIFICATION/DOWNGRADING<br>SCHEDULE                  |
| 16. DISTRIBUTION STATEMENT (of this Report)<br><br>Approved for public release; distribution unlimited                                   |                       |  |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)   |                       |  |
| 18. SUPPLEMENTARY NOTES  |                       |  |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)   |                       |  |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br><br>14;20   |                       |  |

DD FORM 1473

1 JAN 73

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)



# DISTRIBUTION LIST

## DISTRIBUTION DIRECT TO RECIPIENT

| ORGANIZATION            | MICROFICHE | ORGANIZATION     | MICROFICHE |
|-------------------------|------------|------------------|------------|
| A205 DMATC              | 1          | E053 AF/INAKA    | 1          |
| A210 DMAAC              | 2          | E017 AF/ RDXTR-W | 1          |
| B344 DIA/RDS-3C         | 8          | E404 AEDC        | 1          |
| C043 USAMIIA            | 1          | E408 AFWL        | 1          |
| C509 BALLISTIC RES LABS | 1          | E410 ADTC        | 1          |
| C510 AIR MOBILITY R&D   | 1          | E413 ESD         | 2          |
| LAB/FIO                 |            | FTD              |            |
| C513 PICATINNY ARSENAL  | 1          | CCN              | 1          |
| C535 AVIATION SYS COMD  | 1          | ETID             | 3          |
| C557 USAIIC             | 1          | NIA/PHS          | 1          |
| C591 FSTC               | 5          | NICD             | 5          |
| C619 MIA REDSTONE       | 1          |                  |            |
| D008 NISC               | 1          |                  |            |
| H300 USAICE (USAREUR)   | 1          |                  |            |
| P005 ERDA               | 1          |                  |            |
| P055 CIA/CRS/ADD/SD     | 1          |                  |            |
| NAVORDSTA (50L)         | 1          |                  |            |
| NASA/KSI                | 1          |                  |            |
| AFIT/LD                 | 1          |                  |            |